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ABSTRACT

Elementary preservice and classroom teachers were given a nonsense word test and a test of phonetic generalizations to determine if teachers can use their knowledge of phonetic generalizations when pronouncing unknown nonsense words, and if there is a relationship between the ability to pronounce unknown nonsense words and knowledge of phonetic generalizations. Results revealed that the total teacher population pronounced correctly a little over half of the nonsense words and preservice teachers did better than inservice teachers, and the relationship was low but significant for the total teacher population and high and significant for preservice teachers. (Author/RB)

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AN INVESTIGATION OF THE RELATIONSHIP BETWEEN TEACHERS' KNOWLEDGE OF PHONICS GENERALIZATIONS AND THEIR ABILITY TO PRONOUNCE NONSENSE WORDS

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A number of investigations have found that teachers have a limited knowledge of phonetic generalizations. A review of research can be found by reading Illika's articles (Illika: 1968, 1969, 1971). These reviews reveal that previous studies have extensively investigated teachers' knowledge of phonetic generalizations. However, Illika did not report any studies on whether teachers can personally use the generalizations by pronouncing unknown (nonsense) words once these generalizations have been acquired.

An additional review of the literature did not locate any articles on teachers' ability to pronounce unknown (nonsense) words. However, two related articles were found. Aaron (1960) studied teachers' knowledge of phonetic generalizations with a paper and pencil test using nonsense words. But use of phonetic generalizations by pronouncing nonsense words is not the same as a multiple choice, paper and pencil test using nonsense words. A second article by Personke (1972) includes a comprehensive review of studies that have used nonsense words. This article points out that nonsense words have been used primarily with elementary pupils to test their ability to generalize in spelling and reading.

In short, it is unknown whether pre-service teachers and/or teachers in grades one through six can use their knowledge of phonetic generalizations when pronouncing unknown (nonsense) words. In addition,

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the relationship between the ability to pronounce unknown (nonsense) words and knowledge of phonetic generalizations is also unknown.

Purpose

The purpose of this investigation was to study these two questions:

1) How proficient are pre-service and elementary reading teachers at pronouncing unknown (nonsense) words?
2) What is the relationship between the ability to pronounce unknown (nonsense) words and a paper and pencil phonics test for the pre-service and elementary reading teachers?

Tests Used

The test chosen for assessing teachers' ability to pronounce unknown words was a nonsense word test developed for this investigation. Nonsense words were used so that an unfamiliar stimulus could be given to the teachers. In addition, the nonsense words could be constructed so that each word followed phonetic generalizations that were highly consistent.

Investigations on the utility of phonetic generalizations by Clymer (1963), Weir and Venesky (1966), and Pival (1969) were used in the construction of the nonsense words. Only consistent or major phonetic generalizations were used. It was necessary to use consistent or major phonetic generalizations so that the participant's pronunciation could be compared to a correct pronunciation and scored either correctly or incorrectly.

Other formats were tried before it was decided to use isolated nonsense words. Both infrequently used real words and nonsense words were tried in sentences so the reader could utilize context clues. Infrequently used real words posed the problem that many major phonetic generalizations could not be tested. Nonsense words placed in sentences left the reader confused about sentence meaning and did not achieve the context utilization objective. In addition, both alternatives made the test more difficult to administer and the administration time longer. Therefore, it was concluded that the isolated, nonsense-word technique was the best alternative.

Forty nonsense words were first developed. Five of the words were eliminated because they could not be scored. The remaining thirty-five words were tried out with a group of students enrolled in a graduate reading course. Nine words from this list were modified based upon the students' responses. The final list of thirty-five words was again administered to another group of graduate students and it was found that for each nonsense word one correct response could be scored. The final list of thirty-five words was:

NONSENSE WORDS

1. succarmible
2. dwinglative
3. phaygons
4. effilliporous
5. distroder
6. strumdillity
7. shabmet
8. foldensic
9. spateringly
10. devongatation
11. affensative
12. duppenger
13. disbodge
14. ptorfent
15. recentipate
16. ortique
17. aptroplier
18. ellimontroxer
19. recimmative
20. idwastle
21. advesculation
22. combaceton
23. hyperdrocing
24. giross
25. phoreumoanic
26. abnesterphous
27. rastorint
28. puliter
29. blonstaive
30. antiprudgic
31. appelgrim
32. chrantom
33. loternic
34. compoddage
35. tanlic[1]

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[1]For a pronunciation key, send a self-addressed envelope to Lowell Eberwein, University of Kentucky.

The thirty-fifth nonsense word tanlic (tăn·lĭk) will illustrate how phonetic generalizations were used in word construction and pronunciation. A generalization from Clymer's study (1963) was used for dividing the word into syllables, or between the letters "n" and "l". Accent was determined by using Pival's (1969) generalizations. The "short" sound of the vowels was used as indicated in the simple vowel units listed in Weir and Venezky (1966). The "t" and "n" were pronounced as in the word tin. Since the "l" preceded the vowel, it was pronounced as in the word lit. The pronunciation of the "c" followed the "ic" pattern as in static. The last four consonant patterns were found in the Weir and Venezky study (1966).

Directions were piloted with a group of graduate students and found to be satisfactory. The directions for the Nonsense Word Test were:

> On this page are some nonsense words. Using your knowledge of phonetic generalizations and real words, pronounce the words as accurately as you can. There is no time limit, so take as long as you like with each word. Your last response will be the response that will be counted.

The participants' responses to the nonsense words were recorded on cassette tapes. The investigators listened to the recorded responses and scored each response as correct or incorrect. If any part of the word was pronounced incorrectly, the response was recorded incorrect.

The Phonics Test for Teachers by Dolores Durkin (1964) was the instrument used to test the participant's knowledge of phonetic generalizations. This is a paper and pencil test which asks the subject to: (1) Identify words which are illustrative of phonetic generalizations, (2) State phonetic generalizations in his own words, (3) Give words which are illustrative of phonetic generalizations, (4) Use phonetic generalizations with nonsense words, and (5) Define phonetic terms. This test is made in such a way that the subject uses phonetic generalizations like those taught in elementary classrooms. The total number of questions on the test was sixty.

While each of the questions has a specific answer on the Phonics Test for Teachers, judgments must be made by the scorer when grading the test. Therefore, two graduate assistants evaluated the answers of each of the participants separately. Differences in scoring the responses were reconciled in a conference between the two scorers.

Split-half reliabilities for both the Nonsense Words Test and the Durkin Phonics Test for Teachers were calculated from the scores of a random sample group of forty subjects. Split-half reliabilities were found so that the correlation coefficients could be corrected for attenuation. The split-half reliability was .66 for the Nonsense Words Test and .79 for the Phonics Test for Teachers.

Procedure

The administration procedure was to ask the teachers to first pronounce the Nonsense Word Test for recording on a cassette tape.

Each of the subjects was then given the Phonics Word Test for Teachers and told that each question on the test would tell them what to do. The nonsense words test took each participant from two to five minutes to read. The Phonics Test took from forty to fifty minutes. Each of the tests was administered on the same day.

Population

The total number in the experimental population was ninety. This population was from two groups. Thirty participants were pre-service teachers from two methods classes and sixty participants were classroom teachers of reading. The thirty pre-service teachers were randomly drawn from two beginning reading-language arts methods courses at the University of Kentucky. Since the data were collected during the last third of the semester, the pre-service teachers had completed a unit on the teaching of word recognition skills a month prior to the collection of the data. The sixty classroom teachers were a stratified random sample of classroom reading teachers from nine elementary schools in a metropolitan mid-western city. Teachers who did not teach reading (i.e., math and social studies teachers) were eliminated from the selection. The classroom teacher population did not include reading specialists who teach below average students.

The classroom teacher group was stratified by grade level (ten per level) and randomly selected at each of the levels. Each teacher gave one hour of her time after school to take the tests. Since participation was voluntary, several teachers at each grade level were eliminated from the random sample because they could not

participate. Other teachers were randomly selected at each grade level as replacements.

Results

Data from the pre-service and elementary reading teachers were pooled for one report of the results. The data were then divided into subgroups for a report of teachers from grades one through six, teachers of grades one and two, teachers of grades three and four, teachers of grades five and six, and pre-service teachers. Mean, mean percentage correct, standard deviation, and Pearson product moment correlation coefficients were calculated for each of the groups. Each of the correlation coefficients was corrected for attenuation. The results are reported in Table 1.

TABLE 1--MEAN, MEAN PERCENTAGE CORRECT, STANDARD DEVIATION, AND CORRELATION COEFFICIENTS FOR THE NONSENSE WORD TEST AND DURKIN PHONICS TEST FOR TEACHERS

Population	Test	Mean	Mean % Correct	Standard Deviation	Correlation*
Total Teachers	Nonsense	19.8	56.6	5.2	.39
N = 90	Phonics	41.6	69.3	9.1	p=<.01
Teachers 1-6	Nonsense	19.1	54.7	5.4	.22
N = 60	Phonics	41.0	68.4	9.3	NS
Teachers 1-2	Nonsense	18.2	52.0	5.4	.32
N = 20	Phonics	40.4	67.3	8.9	NS
Teachers 3-4	Nonsense	17.6	50.3	4.4	.02
N = 20	Phonics	44.3	73.8	7.8	NS
Teachers 5-6	Nonsense	21.6	61.7	5.8	.58
N = 20	Phonics	38.4	64.0	10.4	p=<.01
Pre-Service Teachers	Nonsense	21.2	60.6	4.6	.78
N = 30	Phonics	42.7	71.7	8.8	p=<.01

*All correlation coefficients were corrected for attenuation.

Conclusions

The following conclusions about the teacher's ability to pronounce nonsense words seem warranted based upon the data presented:

1) The total teacher population (including both pre and in-service teachers) pronounced correctly a little over half of the nonsense words.

2) Elementary classroom teachers (1-6) pronounced correctly a little over half of the nonsense words.

3) Fifth-sixth grade teachers pronounced nonsense words better than first-second, and third-fourth grade teachers.

4) Trained pre-service teachers pronounced nonsense words better than classroom teachers.

The following conclusions about the relationship between nonsense words and knowledge of phonetic generalizations seem warranted based upon the data presented:

1) The relationship was low but significant for the total teacher population.

2) The relationship varied from sub-group to sub-group in the total teacher population. The relationship was:

   a. Low and non-significant for classroom teachers in grades one through six.

   b. Low and non-significant for classroom teachers in grades one-two and three-four.

   c. Moderately high and significant for classroom teachers in grades five-six.

   d. High and significant for pre-service teachers.

Discussion

It seems that training had an effect on the pre-service teacher's ability to pronounce nonsense words and in their knowledge of phonetic generalizations. Yet the most striking comparison was in the correlation coefficient. It seems that the training not only influenced mean scores, but also influenced the relationship between the ability to pronounce nonsense words and knowledge of phonetic generalizations.

This suggests that pre-service teachers can be trained in: knowledge of phonetic generalization, and use of phonetic skills with unknown (nonsense) words. In addition, the two skills vary consistently or have a relatively high relationship with pre-service teachers. But the classroom teacher (1-6) population shows that knowledge of phonetic generalizations does not always imply that teachers can use these generalizations when pronouncing unknown words.

An interesting finding is that teachers at different grade levels vary in their abilities to pronounce nonsense words, their knowledge of phonetic generalizations, and the relationship between the two skills. It is unknown why the relationship between the two skills was high and significant for fifth-sixth grade teachers, or low and non-significant for the third-fourth grade teachers. There may have been some truth in one primary teacher's comment. She said, "Aw, first grade teachers can't pronounce words like that. We just work with little words." This poses a rather interesting and perplexing question. Are teachers conditioned by the grade level at which they teach? An answer to this question could be determined by retesting a group of pre-service teachers after they have taught in the classroom.

Further research could focus on the question of whether teachers become proficient with certain skills as a result of teaching at a particular grade level. Aaron (1960) did not find significant differences on a paper and pencil nonsense words test that related to teacher grade level placement. The findings of this investigation seem to be in conflict with Aaron's results. Differences in the results could be attributed to the different measurement procedures and purposes for the two investigations.

Results from the third-fourth grade teachers and pre-service teachers show an interesting contrast. The third-fourth grade teachers had the highest scores on the knowledge of phonetic generalizations and the lowest scores on application of the generalizations with nonsense words. For these teachers, knowledge of phonetic generalizations may have interferred with their ability to pronounce nonsense words. Yet results from the pre-service teacher population suggests that knowledge of phonetic generalizations does not seem to interfere with pronunciation of nonsense words because both test scores were high. The study leaves unresolved the question of whether knowledge of phonetic generalizations aid or interfere with the pronunciation of nonsense words.

Another interesting finding is the relatively low correlation coefficient (.39) for the two tests for the total teacher population. This coefficient suggests that only 15 percent of the variance of the teacher's ability to pronounce nonsense words can be accounted for in the Durkin Phonics Test for Teachers. It can be inferred from the data that the Phonics Test for Teachers primarily measures knowledge of phonetic generalization and doesn't (in any meaningful way) test teacher's ability to pronounce nonsense words.

This investigation gives no ready solution to the problem, "What phonetic skills does a classroom reading teacher need?" The study simply points out that many teachers cannot effectively pronounce nonsense words and that the relationship between knowledge of phonetic generalizations and application of these generalizations with nonsense words is low but significant. The study did not attempt to answer the question of whether the ability to pronounce nonsense words increases

the teacher's effectiveness in teaching reading to elementary school students. In effect, the study proposes a new teacher-skill question. That is, "Should teachers know how to apply their knowledge of phonetic generalizations with unknown words?" Additional research is needed to resolve this perplexing question.

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